

Claims

1. A method for fabricating a liquid crystal display (LCD) with a uniform common voltage, the method comprising:
 - 5 providing a lower substrate having a display area and a non-display area;
 - forming a plurality of scan lines, a plurality of common electrodes, and a plurality of common electrode pads on an upper surface of the lower substrate, wherein the common electrodes are used for transmitting a common voltage, and the common electrode pads are electrically connected to the common electrodes;
 - 10 forming a plurality of data lines on the upper surface of the lower substrate, wherein the data lines are arranged perpendicular to the scan lines to form a pixel matrix in the display area, the pixel matrix comprising a plurality of pixels;
 - providing an upper substrate;
 - forming a plurality of photo spacers on a bottom surface of the upper substrate, each 15 photo spacer corresponding to one of the common electrode pads on the lower substrate;
 - forming a conductive material layer on the bottom surface of the upper substrate to make the conductive material layer cover the surface of the photo spacers;
 - 20 combining the upper substrate and the lower substrate face to face by using the photo spacers to support a space between the upper substrate and the lower substrate, and electrically connecting the conductive material layer covering the surface of each of the photo spacers to the common electrode pads corresponding to each of the photo spacers; and
 - filling a plurality of liquid crystal molecules in the space between the upper substrate 25 and the lower substrate, and sealing the space between the upper substrate and the lower substrate.
2. The method of claim 1 further comprising forming a plurality of thin film transistors (TFTs) on the upper surface of the lower substrate, wherein the TFTs

are positioned on each intersection of the scan lines and the data lines as switching elements of the pixels.

3. The method of claim 2 further comprising forming a plurality of pixel electrodes electrically connected to the TFTs on the upper surface of the lower substrate.
4. The method of claim 1 further comprising forming a plurality of color filters on the bottom surface of the upper substrate, wherein each of the color filters comprises a red color filter, a green color filter, and a blue color filter.
5. The method of claim 1 further comprising forming a plurality of color filters on the upper surface of the lower substrate, wherein each of the color filters comprises a red color filter, a green color filter, and a blue color filter.
6. The method of claim 1 further comprising forming a polarizer on a bottom surface of the lower substrate and forming a polarizer on an upper surface of the upper substrate.
7. The method of claim 1, wherein each of the pixels contains one of the photo spacers.
8. The method of claim 1, wherein the conductive material layer is a transparent indium tin oxide (ITO) layer.
9. An LCD with a uniform common voltage, the LCD comprising:
 - a lower substrate having a display area and a non-display area on an upper surface thereof, the lower substrate comprising:
 - a plurality of scan lines and a plurality of data lines, wherein the data lines are

arranged perpendicular to the scan lines to form a pixel matrix in the display area, the pixel matrix comprising a plurality of pixels;

5 a plurality of common electrodes for transmitting a common voltage; and

a plurality of common electrode pads electrically connected to the common electrodes;

an upper substrate positioned on the lower substrate oppositely, the upper substrate comprising:

10 a plurality of photo spacers positioned on a bottom surface of the upper substrate for supporting a space between the upper substrate and the lower substrate, wherein each of the photo spacers corresponds to one of the common electrode pads of the lower substrate; and

15 a conductive material layer positioned on the bottom surface of the upper substrate covering the photo spacers, wherein the conductive material layer covering the photo spacers is connected to each of the common electrode pads corresponding to each of the photo spacers; and

a plurality of liquid crystal molecules filled in the space between the upper substrate and the lower substrate.

- 20 10. The LCD of claim 9, wherein the lower substrate further comprises a plurality of TFTs positioned on each intersection of the scan lines and the data lines as switching elements of the pixels.
- 25 11. The LCD of claim 9 further comprising a plurality of pixel electrodes positioned in the pixels and electrically connected to the TFTs.
12. The LCD of claim 9 further comprising a plurality of color filters positioned on the bottom surface of the upper substrate, wherein each of the color filters comprises a red color filter, a green color filter, and a blue color filter.

13. The LCD of claim 9 further comprising a plurality of color filters positioned on the upper surface of the lower substrate, wherein each of the color filters comprises a red color filter, a green color filter, and a blue color filter.
- 5 14. The LCD of claim 9 further comprising a polarizer positioned on the upper surface of the upper substrate and a polarizer positioned on the bottom surface of the lower substrate.
- 10 15. The LCD of claim 9, wherein each of the pixels contains one of the photo spacers.
16. The LCD of claim 9, wherein the conductive material layer is a transparent ITO layer.